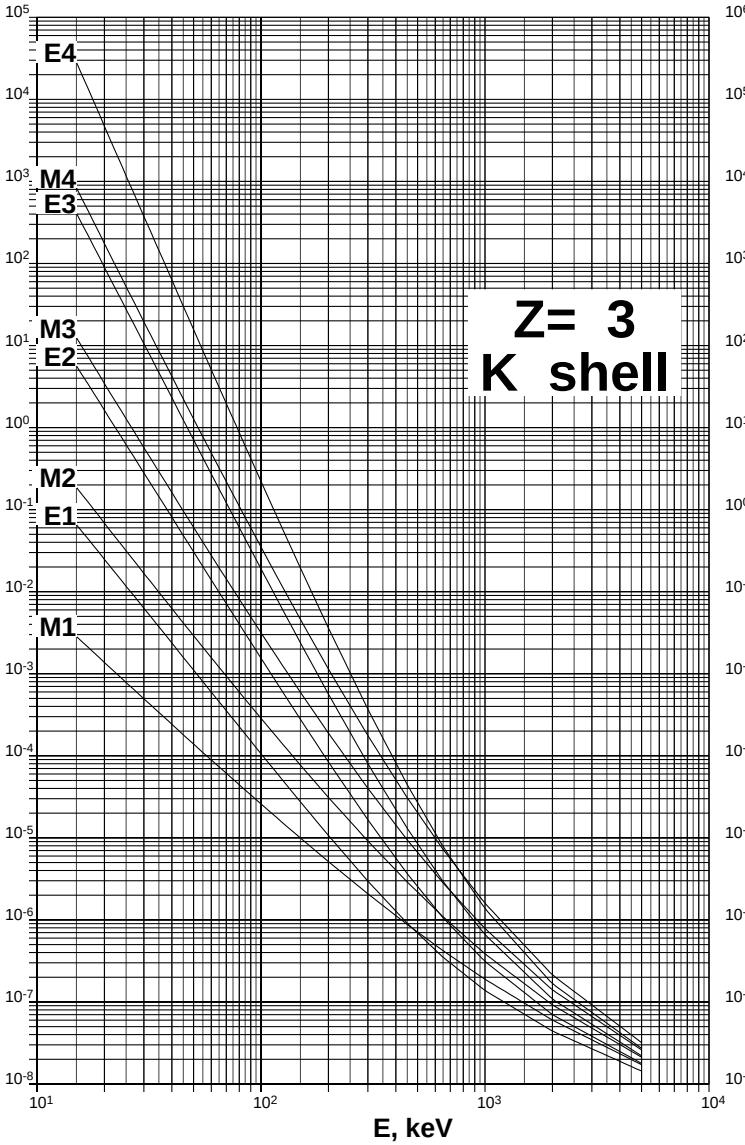
# APPENDIX F. ATOMIC DATA

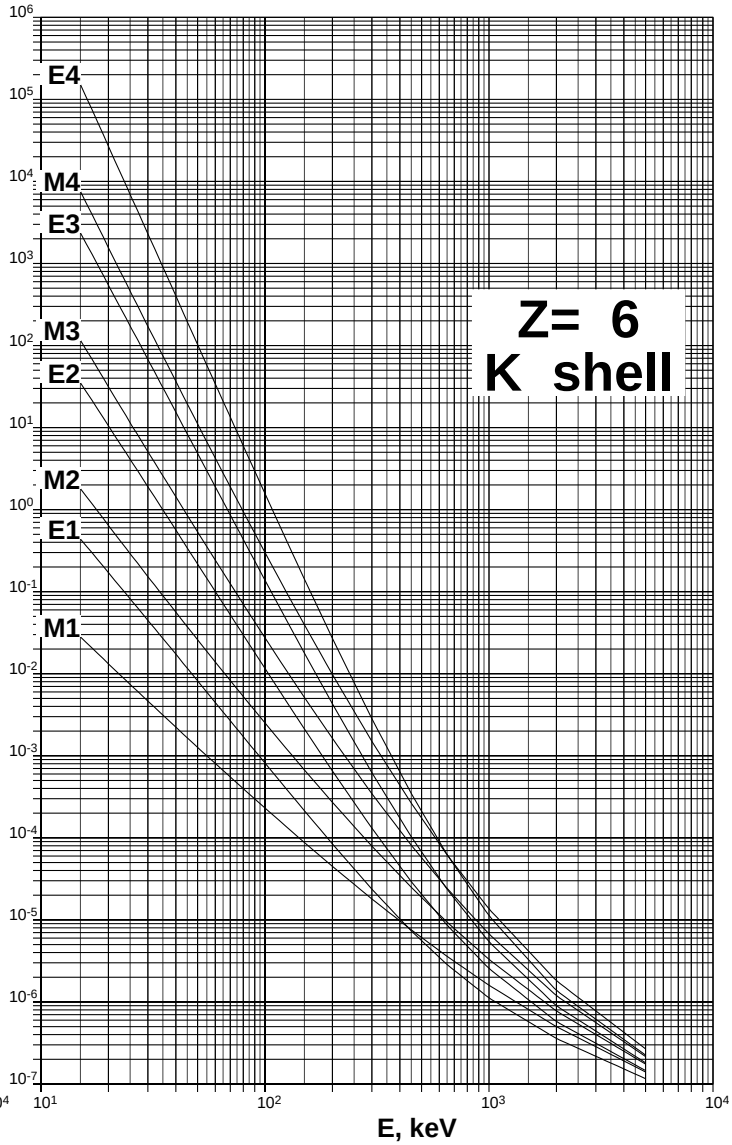
## 1. Theoretical Internal Conversion Coefficients

The following graphs provide selected theoretical conversion coefficients for $M1$, $M2$, $M3$, $M4$, $E1$, $E2$, $E3$, and $E4$ transitions to an accuracy of 3% to 5%. For atomic numbers $Z$=3, 6, 10, and 20, the graphs show $K$-shell and $L$-subshell conversion coefficients from Band *et al.*[1] For Z=30 through Z=100, they show $K$-shell, $L$- subshell, and total conversion coefficients from calculations by Rösel *et al.*[2]

Smooth curves have been drawn through the calculated data points by using a cubic spline fit to the logarithms of both energy and conversion coefficient. Discontinuities in the plots of total conversion coefficients occur at the binding energies of the $K$ atomic shells, and the graphs at these energies indicate only the change in the conversion coefficient due to the presence of the $K$-shell edge. One should be aware that the cubic spline fit may not adequately represent this region and interpolation near the $K$-shell edge may be unreliable.

The $K$ binding energies used by Rösel *et al* [2] for calculating conversion coefficients are from Bearden and Burr.[3] The newer and generally more precise $K$ binding energies of Porter and Freedman[4] are somewhat different and, for some elements with $Z \geq 84$,[5] differ by more than 2 *keV*. One should be aware that these differences may significantly affect conversion coefficients near the $K$ binding energy.




[1] I.M. Band, M.B. Trzhaskovskaya, and M.A. Listengarten, *At. Data and Nucl. Data Tables* **18**, 433 (1976).

[2] F. Rösel, H.M. Fries, K. Alder, and H.C. Pauli, *At. Data and Nucl. Data Tables* **21**, 91 (1978); **21**, 291 (1978).

[3] J.A. Bearden and A.F. Burr, *Rev. Mod. Phys.* **39**, 125 (1967).

[4] F.T. Porter and M.S. Freedman, *J. Phys. Chem. Ref. Data.* **7**, 1267 (1978).

[5] M.R. Schmorak, private communication (1982).